



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,684	04/25/2005	Jorg Mayer	FRG-15998	7308

40854 7590 03/04/2011  
RANKIN, HILL & CLARK LLP  
38210 GLENN AVENUE  
WILLOUGHBY, OH 44094-7808

EXAMINER
----------

BALLINGER, MICHAEL ROBERT

ART UNIT	PAPER NUMBER
----------	--------------

3776

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

03/04/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

40854@rankinhill.com  
spaw@rankinhill.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,684	<b>Applicant(s)</b> MAYER ET AL.	
	<b>Examiner</b> Michael R. Ballinger	<b>Art Unit</b> 3776	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26,46 and 47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26,46 and 47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/3/11</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3 January 2011 has been entered. In acknowledgement of the amendments filed 3 January 2011, claims 1-26 and 46-47 are currently pending.

### **Claim Objections**

2. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The Examiner notes, claim 1 now requires "a wedge angle  $\beta$  of between a proximal and a distal cutting edge surface of less than 90°". Thus the recitation of claim two is redundant and fails to further limit the parent claim.

### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3776

**4. Claims 1-19, 21-26 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (WO/02069817) in view of Haboush (U.S. 3,067,740) and further in view of Kuoni (U.S. 5,593,446).**

5. Per claim 1 and 46-47, figures 20-22 of Aeschlimann teaches a bone implant (i.e. implant 7) suitable for implantation in an implantation direction parallel to an implant axis in a cavity surrounded by a cavity wall of bone tissue (i.e. jawbone, 32), including implant portion including a first type of surface ranges (i.e. cylindrical piece, 44) of a material that is liquefiable by mechanical oscillation (page 18, lines 11-16 of translation and page 4, lines 34 to page 5, line 5 and page 18, lines 11-16) or a second type surface ranges (44) formed by pressing the liquefiable material out of a hollow space (i.e. porous sleeve material, page 18, line 14) and the implant portion includes edges (i.e., C, D, and E, as illustrated below), the edges are located outside the surface ranges (44), the edges not extending in a common plane with the implant axis, face towards the distal end region of the implant and extend partly around the circumference of the implant (i.e., the edges extend partly around the circumference of the implant, as evidenced by the cross-sectional view of figure 22).

6. The Examiner notes, Aeschlimann fails to explicitly teach (a) that the edges are chip forming cutting edges cutting the cavity wall of the bone tissue, (b) that the cutting edges define a wedge angle  $\beta$  between a proximal cutting edge surface and a distal cutting edge surface of less than  $90^\circ$ , (c) that an angle  $\gamma$  between the distal cutting edge surface and the implant axis of about  $90^\circ$ , or less, (d) that cutting edges are distance from the implant axis by implant-axis-to-cutting-edge-distances, which implant-axis-to-cutting-edge-distances are decreasing in the implanting

Art Unit: 3776

direction or (e) that the implant portion to be implanted is shaped to be implanted without substantial rotation.

7. However, Haboush teaches an implant including (a) edges (i.e., cutting edges, 18, 19, 20, and 21) which are chip forming cutting edges which cut the cavity wall of the bone tissue (column 2, lines 37-42) and provides (e) an implant portion shaped to be implanted without substantial rotation (i.e., Haboush discloses the implant as a nail, and one having ordinary skill in the art would recognize a nail is inserted without substantial rotation), also it is clear from figure 1 of Haboush that (d) the implant-axis-to-cutting-edge distance decreases in the implanting direction (i.e., the cutting edge 18 extends radially a distance less than cutting edge 21, see also column 2, lines 46-51). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Aeschlimann to include implant shape and cutting edges as taught by Haboush in order to anchor the implant more firmly (column 2, lines 37-38), to facilitate callus formation (column 2, lines 42-43) and to facilitate insertion into the bone, assure good fit, and avoid cocking or breakage (column 2, lines 27-50).

8. Additionally, the Examiner notes, Aeschlimann and Haboush fail to explicitly teach (b) that the cutting edges define a wedge angle  $\beta$  between a proximal cutting edge surface and a distal cutting edge surface of less than  $90^\circ$ , (c) that an angle  $\gamma$  between the distal cutting edge surface and the implant axis of about  $90^\circ$ , or less. However, figure 1 of Kuoni teaches a prosthesis similar to that of Haboush including cutting edges (i.e., teeth points, 28) defining a wedge angle  $\beta$  (i.e.,  $\alpha$ ) between a proximal cutting edge surface (i.e., short part, 16) and a distal cutting edge surface (i.e., tooth flank, 15) of less than  $90^\circ$  (column 2, lines 25-26). The Examiner notes that the wedge angle  $\beta$  of Kuoni is "slightly smaller than  $90^\circ$ " and that proximal

Art Unit: 3776

cutting surface (16) "is parallel to the circumference of the core". Thus the angle  $\gamma$  between the distal cutting surface and the implant axis must be about  $90^\circ$  or less as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Aeschlimann and Haboush to include the wedge angle  $\beta$  and angle  $\gamma$  as taught by Kuoni, in order to prevent the implant from sinking into the bone tissue as taught by Kuoni (column 2, lines 53-61).

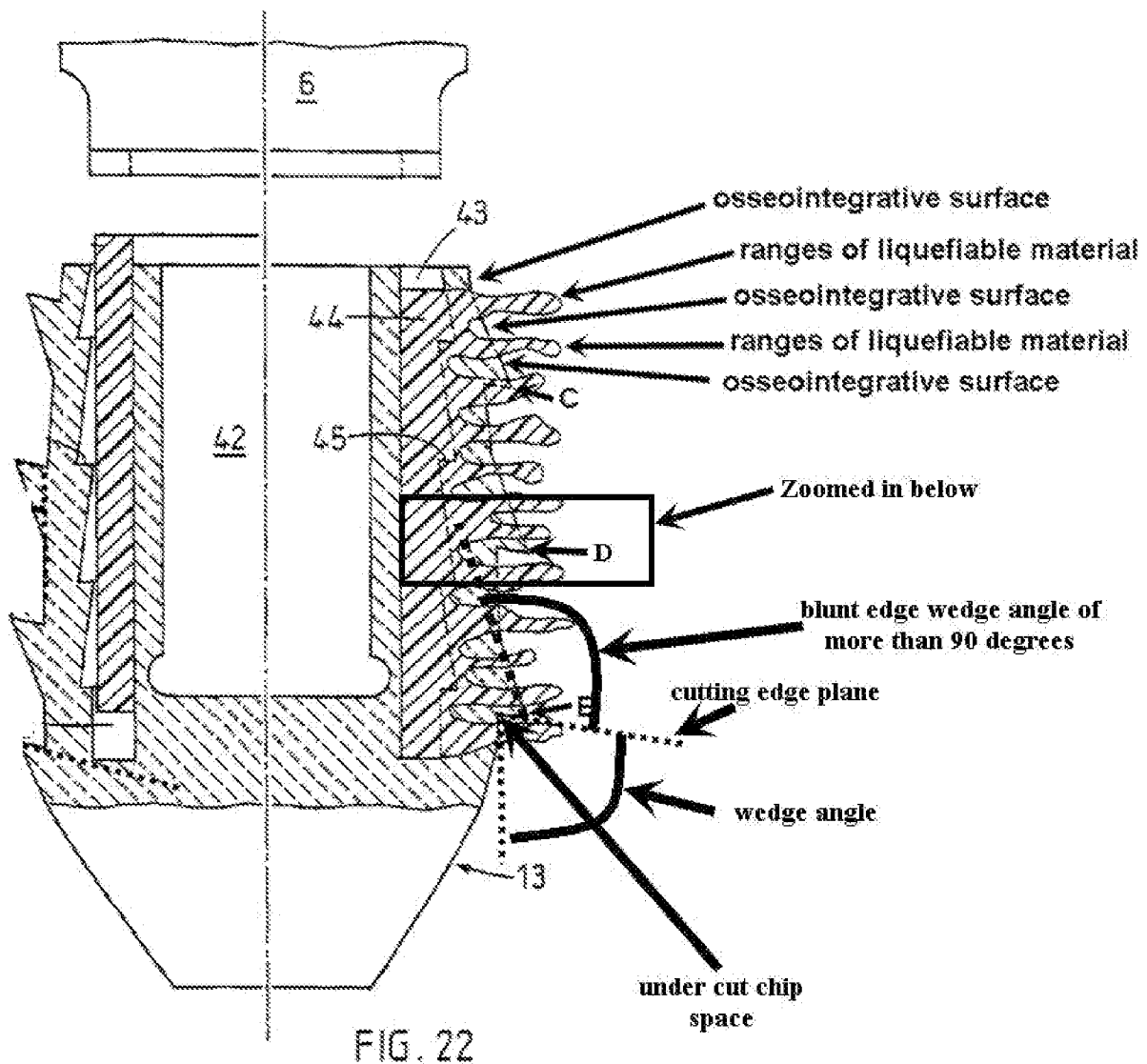
9. Additionally, with respect to claims 2-4, the Examiner notes the implant of Aeschlimann as modified by Haboush and Kuoni as described above would have the cutting edges (28) of Kuoni which are salient (i.e., they project beyond the surface of the implant) and are undercut (i.e., the space immediately adjacent the flank 15). Also, Per claim 9 it is clear from figures 1 and 2 that the implant of Kuoni includes axially extending furrowing structures (i.e., ribs, 6) and per claims 10 and 13-14, figures 1 and 2 of Kuoni clearly indicates the cutting edges extending along parts of the circumference of the implant forming lower edges of scale like structure and the implant tapering towards a distal end. Per claims 15-17 Kuoni teaches the implant includes steps (i.e., the transition from the steep tooth flank 15 and long part 17 can be considered steps), the steps have a wedge angle of  $90^\circ$  or more (i.e., the supplement of angle  $\alpha$ , see figure 1), the implant is essentially cylindrical (see core 2, in figure 2) and the cutting edges distance from the implant axis decreases and are aligned in series (see figure 1).

10. Per claim 5, figure 22 of Aeschlimann teaches liquefiable material is situated in depressions (i.e., annular opening, 43) and the surface ranges of the liquefiable material protrude from surface areas surrounding the material (see the right most side of figure 22). Per claims 6 and 7, figure 8 of Aeschlimann teaches openings (i.e. the openings in sleeve, 13) leading into

Art Unit: 3776

depressions (i.e. the openings are depressed into the sleeve) and the depressions are grooves extending axially (i.e. top to bottom of figure 8) in the implant region. Per claim 8, figure 22 teaches osseointegrative surfaces are situated between the surface ranges of the liquefiable material (as illustrated below). Per claim 12, figure 22 teaches the proximal end region includes a ring (i.e. top portion of cylindrical piece, 44) of thermoplastic material (i.e. polyester, page 12, lines 30-31 as the liquefiable material). Furthermore, per claim 18, figure 22 teaches two series of cutting edges (i.e. C-D-E as illustrated below) facing each other, and surface ranges of liquefiable material are situated between the series on the implant structure (illustrated below).

11. Per claim 19, Aeschlimann teaches a hollow space (42: figure 22) and a piston (i.e. bottom cylindrical portion of artificial tooth, 42 shown in figure 20). Per claims 21-23, figure 20 of Aeschlimann teaches the implant is a dental implant which carries an intermediate element (i.e. artificial tooth, 40) and the intermediate element is connected by a loose fit connection (page 17, lines 27-34). Per claim 24, Aeschlimann teaches means for fastening an abutment, a crown, a bridge or a set of dentures (page 17, lines 29-30). Per claims 25 and 26, figure 27 of Aeschlimann teaches the implant is a shaft which capable of bridging a bone defect.



12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (WO/02069817 A1) Schulte et al. (U.S. 5,199,873) ) in view of Haboush (U.S. 3,067,740) and Kuoni (U.S. 5,593,446) as applied to claim 1 above, and further in view of Lazarof (U.S. 6,142,782)



Art Unit: 3776

13. The Examiner notes the claim includes claim element “means for an insulating connection”, is a means plus function limitation that invokes 35 U.S.C. 112, sixth paragraph.

The written description discloses this "means" as "the piston is equipped with finely pitched thread 44, when pushed into the hollow space, 26 is cold-welded to the wall of the hollow space". Therefore, the Examiner has interpreted this limitation as threading which when compressed creates a cold welding between the piston and implant and equivalents.

Aeschlimann, Schulte, and Lang fail to explicitly disclose this limitation; however, Lazarof teaches a piston (i.e. draw screw, 80) including a threaded portion (i.e. threaded shank, 86) which when compressed into the implant (60) causes a cold welding connection (column 7, lines 42-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time then invention was made to modify the piston-implant connection of Aeschlimann Schulte, and Lang to include the threaded cold-welding connection of Lazarof, in order to prevent harmful bacteria from entering the internal hollow of the implant.

### **Response to Arguments**

14. Applicant's arguments filed 3 January 2011 have been fully considered but they are not persuasive.

15. On page 13 of the remarks Applicant has argued that the first instance of liquefiable surface ranges are not taught because the liquefiable material of Aeschlimann is pushed through the porous surface of the sleeve. First the Examiner notes, Aeschlimann teaches a material liquefiable by mechanical oscillation (see e.g., page 4, lines 34 to page 5, line 5 and page 18, lines 11-16). The Examiner disagrees with Applicant's assertion that the liquefiable material must be on the implant surface before it is implant, as this limitation does not appear in the

Art Unit: 3776

claims. The Examiner submits, the claim merely requires an implant portion including ranges of a material which is liquefiable by mechanical oscillation. The claim does not require the material to be present on the exterior surface of the implant prior to insertion as argued by Applicant. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The liquefiable material 44 meets the limitation surface ranges as it has a is contacting a surface of the implant portion and covers an area of that surface. Furthermore, even if the claims required the surfaces ranges to be on the exterior of the surface prior to insertion as argued by Applicant, Aeschlimann at least renders obvious such a configuration in figures 6 and 7 which clearly show liquefiable material on the exterior surface of an implement (see pages 13-14).

16. Applicant has also argued the combination of Aeschlimann, Shulte, and Lang fail to teach the configuration of distal and proximal cutting edge surfaces as claimed and that the combination of references is non-obvious because the disclosure of Aeschlimann teaches away from such a combination. These arguments are moot in view of the new grounds of rejection as detailed above.

### **Conclusion**

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892 form.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R. Ballinger whose telephone number is (571)270-5567. The examiner can normally be reached on Monday thru Friday 9:00 AM to 6:00 PM.

Art Unit: 3776

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Todd Manahan can be reached on (571)272-4713. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Ballinger/  
Examiner, Art Unit 3776

/TODD E. MANAHAN/  
Supervisory Patent Examiner, Art Unit 3776